

## **APPENDIX I**

### **STATEMENT OF WORK**

#### **Shieldalloy Corporation Superfund Site Remedial Design for the Operable Unit 1 Remedy**

##### **I. WORK TO BE PERFORMED**

This Statement of Work (SOW) shall mean the statement of work for implementation of the remedy selected in the September 24, 1996 Record of Decision (ROD) issued by the United States Environmental Protection Agency (EPA) for the Shieldalloy Corporation Superfund Site (Site) located in Gloucester County, New Jersey. This SOW is incorporated into Administrative Settlement Agreement and Order on Consent for the Remedial Design for the Shieldalloy Corporation Superfund Site and is an enforceable part of the Order.

The Work includes all work necessary to complete the remedial design (RD) of the selected remedy for OU1 as described in the ROD. The remedy includes, but is not limited to, the following components:

- Modified groundwater extraction system to optimize the capture of contaminated groundwater;
- Air stripping to remove volatile organic compounds from the recovered groundwater;
- Electrochemical treatment with supplemental treatment (as required) to remove inorganic contaminants, especially metals, from the recovered groundwater;
- Discharge of treated groundwater to surface waters of the Hudson Branch of the Maurice River; and
- Establishment of a Classification Exemption Area (CEA).

##### **II. PERFORMANCE STANDARDS**

Performance Standards are the cleanup standards and other measures to achieve the goals of the remedy selected in the 1996 ROD, which include aquifer restoration, as well as cleanup standards for the treated effluent.

The remedy shall comply with all Federal and State Applicable or Relevant and Appropriate Requirements (ARARs) as set forth herein and in the ROD, including, but not limited to, Federal and State Maximum Contaminant Levels (MCLs) and New Jersey Ground Water Quality Standards (GWQS).



### **III. PROJECT SUPERVISION/MANAGEMENT**

#### **Supervising Contractor**

The RD and any other activities performed related to the OU1 remedy for the Site will be under the direction and supervision of a qualified licensed professional engineer (hereinafter, the Supervising Contractor) and will meet any and all requirements of applicable federal, State and local laws. Within ten (10) days of the effective date of the Order, the Respondent shall notify EPA and the NJDEP, in writing, of the names, titles, and qualifications of the Supervising Contractor proposed to be used in the development and implementation of the Work to be performed pursuant to this SOW and the Order. Respondent shall propose a Supervising Contractor in accordance with and pursuant to Paragraph 33 of the Order. Selection of any such engineer, contractor, or subcontractor shall be subject to approval by the EPA. See Section VII of the Order for additional requirements regarding the selection of Supervising Contractor.

#### **Project Coordinator**

Within ten (10) calendar days after the effective date of the Order, Respondent shall notify EPA, in writing, of the name and title of the Project Coordinator who may be an employee of the Supervising Contractor. The Project Coordinator shall be responsible for the day to day management of all Work to be performed pursuant to the Order. The Project Coordinator shall have adequate technical and managerial experience to manage all Work described in this Statement of Work and under the Order. The Project Coordinator shall be knowledgeable at all times about all matters relating to activities regarding the RD. The Project Coordinator shall be the primary contact for EPA on all matters relating to Work at the Site and should be available for EPA to contact during all working days. The Project Coordinator shall not be an attorney.

### **IV. PROJECT REPORTS AND CONSTRUCTION MEETINGS**

A. In addition to the other deliverables set forth in the Order, Respondent shall provide written monthly progress reports to EPA with respect to actions and activities undertaken pursuant to the Order. The progress reports shall be submitted on or before the tenth day of each month following EPA's approval of the Work plan. Respondent's obligation to submit progress reports continues until EPA gives Respondent written notice under Paragraph 119 of the Order. At a minimum, these progress reports shall include the following:

1. A description of all actions which have been taken toward achieving compliance with the Order during the prior month;
2. A description of any violations of the Order and other problems encountered during the prior month;

3. A description of all corrective actions taken in response to any violations or problems which occurred during the prior month;
4. The results of all sampling, test results and other data received or generated by Respondent during the course of implementing the Work during the prior month. Such results shall be validated in accordance with the approved Quality Assurance Project Plan developed in conformity with the SOW;
5. A description of all plans, actions, and data scheduled for the next eight weeks;
6. An estimate of the percentage of the Work required by the Order which has been completed as of the date of the progress report; and
7. An identification of all delays encountered or anticipated that may affect the future schedule for performance of the Work, and all efforts made by Respondent to mitigate delays or anticipated delays.

#### **V. REMEDIAL DESIGN ACTIVITIES**

The RD activities to be performed in support of the implementation of the remedy described in the ROD include, but are not limited to, the following:

- A. Development of work plans, tasks, and schedules for all Work required under this Order, including, but not limited to, the development of a RD Workplan; a Field Sampling and Analysis Plan; and a Field Sampling and Analysis Report; a Preliminary RD Report (35% completion); a Pre-Final RD Report (95% completion); and a Final RD Report (100% completion);
- B. Design of a groundwater extraction/treatment system, as outlined in the ROD, to modify the existing extraction and treatment system to optimize the capture of the contaminated groundwater. This design shall include, at a minimum, a determination of the exact number, depth, pumping rates, and location of all extraction wells;
- C. Evaluation of the need for air monitoring during construction activities at the Site and development, if necessary, of plans to ensure that air emissions resulting from construction activities meet applicable or relevant and appropriate air emission requirements;
- D. Development of tasks required for establishing institutional controls, including the establishment a CEA to restrict the use of groundwater in the vicinity of the Site, until the appropriate groundwater cleanup standards are achieved;

- E. Development of tasks to conduct analysis to ensure that any adverse impacts caused by the RA to streams, surface water bodies and wetlands areas will be mitigated; and
- F. Development of tasks to conduct a cultural resources survey to ensure compliance with the National Historic Preservation Act.

## **VI. REMEDIAL DESIGN WORK PLAN**

Within thirty (30) days from the effective date of the Order, Respondent shall submit a draft Remedial Design Work Plan to EPA for review and approval pursuant to Section IX (EPA Approval of Plans and Other Submissions) of the Order.

The draft RD Work Plan shall be prepared in accordance with this SOW, the Order, CERCLA and relevant EPA guidance, including the EPA document entitled *Guidance on Oversight of Remedial Designs and Remedial Actions performed by Potentially Responsible Parties*, (OSWER directive 9355.5-01, EPA/540/g-90-001), dated April 1990, and shall be in conformance, *inter alia*, with the *Superfund Remedial Design and Remedial Action Guidance*, dated June 1986, and any updates thereto.

The draft Remedial Design Work Plan shall include tasks, work plans, field work and data collection, and schedules for implementation of the RD, that are necessary to ensure compliance with performance standards, ARARs, or other requirements of the remedy selected in the ROD, including the preparation and submission of a Field Sampling and Analysis Report, the Preliminary RD Report (35% completion), a Pre-Final RD Report (95% completion), and a Final RD Report (100% completion (collectively, RD Reports). The draft Remedial Design Work Plan shall also include a draft schedule for remedial action, O&M, and monitoring activities. The schedule shall be in the form of a task/subtask activity bar chart or critical path method sequence of events. At a minimum, the draft Remedial Design Work Plan shall include, but not be limited to, the following:

- A. A description of all RD tasks.
- B. A summary of all existing groundwater data collected at the Site should be thoroughly reviewed and incorporated into the draft RD work plan. This data includes, but is not limited to, the results of previous groundwater investigations conducted at the site, historical information about the groundwater, including direction of flow, depth to groundwater, and other available information regarding the groundwater at the site.
- C. A Field Sampling and Analysis Plan (FSP) shall be prepared by Respondent, and incorporated into the RDWP, which provides for the collection of all data and performance of all Work necessary to complete RD activities including, but not limited to:
  - 1. Installation of additional groundwater monitoring wells and

piezometers for use in fully characterizing the groundwater contaminant plume;

2. Sampling and analysis to determine the full nature and extent of groundwater contamination. Parameters to be analyzed for include full TCL/TAL compounds, as well as perchlorate;
  3. Collection of all necessary hydrogeologic data including, but not limited to, pump test data;
  4. Performance of groundwater modeling; and
  5. Conduct vapor intrusion studies and investigations.
- D. A detailed schedule for all RD activities. The RD schedule shall provide for the completion and submittal to EPA of the Final RD Report (100% completion) within 18 months of EPA's written approval of the completion of the Pre-Remedial Design Work Plan.
- E. A plan for establishing institutional controls, including the establishment of a CEA to restrict the use of contaminated groundwater associated within the Site until the appropriate groundwater cleanup standards are achieved.
- F. A plan for the performance of air monitoring, as necessary, during construction activities at the Site to ensure that air emissions resulting from the construction activities meet applicable or relevant and appropriate air emission requirements.
- G. Quality Assurance/Quality Control Project Plan
1. Prior to commencement of any monitoring under the Order, a Quality Assurance/Quality Control Project Plan (QAPP) shall be prepared by Respondent, which is consistent with the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP), Parts 1, 2A and 2B, EPA-505-B-04-900 A, B and C, March 2005 or newer, and other guidance documents referenced in the aforementioned guidance documents. Activities involving the collection, generation, use and/or reporting of environmental data, design; construction and/or operation of environmental technologies; development and/or use of models; and other activities that need quality assurance or quality control requirements shall incorporate quality assurance, quality control, and chain of custody procedures in accordance with the Uniform Federal Policy for Implementing Quality Systems (UFP-QS), EPA-505-F-03-001, March 2005 or newer, Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP), Parts 1, 2A, and 2B, EPA-505-B-04-900 A, B and C, March 2005 or newer, and other guidance documents referenced in the aforementioned guidance documents. The UFP documents may be found at: [http://www.epa.gov/fcdfac/documents/intergov\\_qual\\_task\\_force.htm](http://www.epa.gov/fcdfac/documents/intergov_qual_task_force.htm).

2. In addition to the above, guidance and procedures that are located in the EPA Region 2 DESA/HWSB website:  
<http://www.epa.gov/region02/qa/documents.htm> as well as other OSWER directives and EPA Region 2 policies should be followed, as appropriate. Subsequent amendments to the above, upon notification by EPA to Respondent of such amendments, shall apply only to procedures conducted after such notification.
3. The Respondent will provide electronic submittal of sampling and geologic data in accordance with R2 policies, guidelines, and formats. The R2 Electronic Data Deliverable (EDD) is a standardized format for all electronic submittals. Electronic submittals of sampling and geologic data will be made in accordance with the project schedule and in conjunction with the submittal of draft reports. The Respondent is responsible for reviewing and approving any contractor work for consistency with R2 EDD requirements. The R2 EDD Guidance and Requirements includes instruction manuals and data submission and validation files.

The most recent EDD Guidance and Requirements can be found at:  
<http://www.epa.gov/region02/superfund/medd.htm>

Environmental data, as referred to above, are defined as any measurements or information that describe environmental processes, location, or conditions; ecological or health effects and consequences; or the performance of environmental technology. For EPA, environmental data include information collected directly from measurements, produced from models, and compiled from other sources such as data bases or the literature.

4. The QAPP shall also specifically include the following items:
  - a. An explanation of the way(s) the sampling, analysis, testing, and monitoring will produce data for the RD;
  - b. A detailed description of the sampling, analysis, and testing to be performed, including sampling methods, analytical and testing methods, sampling locations and frequency of sampling; and
  - c. A map depicting sampling locations (to the extent that these can be defined when the QAPP is prepared).
5. In order to provide quality assurance and maintain quality control with respect to all samples to be collected, Respondent shall ensure the following:
  - a. Quality assurance and chain-of-custody procedures shall be performed in accordance with standard EPA protocol and

guidance, including the guidance provided in the EPA Region 2. Quality Assurance Home-page, and the guidelines set forth in the Order.

- b. Once laboratories have been chosen, each laboratory's quality assurance plan (LQAP) should be submitted for review by EPA. In addition, the laboratory should submit to EPA current copies (within the past six months) of laboratory certification provided from either a State or Federal Agency which conducts certification. The certification should be applicable to the matrix/analyses which are to be conducted. If the laboratory does not participate in the Contract Laboratory Program (CLP), they must submit to EPA the results of performance evaluation (PE) samples for the constituents of concern from within the past six months or they must complete PEs for the matrices and analyses to be conducted and results must be submitted with the LQAP.

For any analytical work performed, including that done in a fixed laboratory, in a mobile laboratory, or in on-site screening analyses, Respondent must submit to EPA a "Non-CLP Superfund Analytical Services Tracking System" form for each laboratory utilized during a sampling event, within thirty (30) days after acceptance of the analytical results. Upon completion, such documents shall be submitted to the EPA Remedial Project Manager, with a copy of the form and transmittal letter to:

Regional Sample Control Center Coordinator U.S. EPA Region 2  
Division of Environmental Science & Assessment 2890  
Woodbridge Avenue, Bldg. 209, MS-215  
Edison, NJ 08837

- c. The laboratory utilized for analyses of samples must perform all analyses according to accepted EPA methods.
- d. Unless indicated otherwise in the approved QAPP, Respondent will validate 100% of data received from the laboratory.
- e. Submission of the validation package (checklist, report and Form 15 containing the final data) to EPA, to the extent applicable, prepared in accordance with the provisions of Subparagraph 7, below.
- f. Assurance that all analytical data that are validated as required by the QAPP are validated according to the latest version of EPA Region 2 data validation Standard Operating Procedures. Region 2 Standard Operating Procedures are available at:  
<http://www.epa.gov/region02/qa/documents.htm>

- g. Unless indicated otherwise in the QAPP, Respondent shall require deliverables equivalent to CLP data packages from the laboratory for analytical data. Upon EPA's request, Respondent shall submit to EPA the full documentation (including raw data) for this analytical data. EPA reserves the right to perform an independent data validation, data validation check, or qualification check on generated data.
- h. Respondent shall insert a provision in their contract(s) with the laboratory utilized for analyses of samples, which will require granting access to EPA personnel and authorized representatives of the EPA for the purpose of ensuring the accuracy of laboratory results related to the RD.
- i. Document Field Activities - The Respondent shall consistently document the quality and validity of field and laboratory data compiled during the Work.

Information gathered during the RA performed under this UAO will be consistently documented and adequately recorded by the Respondent in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the Work Plan and QAPP. Field logs or dedicated field log-books must be utilized to document observations, measurements, and significant events that have occurred during field activities. Electronic field record keeping can be utilized; however, it does not eliminate the requirement for manual record keeping and/or submittals. Measurements or observations may also be recorded by appropriate electronic media and transferred into the report from these media. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

- j. Maintain Sample Management and Tracking.

The Respondent shall maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the evaluation of remedial alternatives. Analytical results developed under the Work Plan will not be included in the site characterization reports for OUI unless accompanied by, or cross-referenced to, a corresponding QA/QC report. In addition, the Respondent shall safeguard chain-of custody forms and other project records to prevent loss, damage, or alteration of project documentation.



6. In the event that additional sampling locations, testing, and analyses are required, Respondent shall submit to EPA an addendum to the QAPP for approval by EPA.
7. The Respondent shall notify EPA and NJDEP not less than fifteen (15) days in advance of any sample collection activities, unless shorter notice is agreed to by EPA. EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall allow Respondent to take split or duplicate samples of any samples it takes as part of its oversight of Respondent's implementation of the Work.

#### H. Health and Safety Plan

The Health and Safety Plan (HSP) for all activities performed under the Order shall be developed by Respondent to address the protection of public health and safety and the response to contingencies that could impact public health, safety, and the environment. The HSP shall satisfy the requirements of the *Occupational Safety and Health Guidance for Hazardous Waste Site Activities*, (June 1990, DHHS NIOSH Publication No. 90-117), and the Occupational Safety and Health Administration, U.S. Department of Labor (OSHA) requirements cited below:

1. RD activities by or on behalf of Respondent shall be performed in such a manner as to ensure the safety and health of personnel so engaged. Activities shall be conducted in accordance with all pertinent general industry (29 CFR Part 1910) and construction (29 CFR Part 1926) OSHA standards, and EPA's *Standards Operating Safety Guides* (OSWER, 1988), as well as any other applicable State and municipal codes or ordinances. All RD activities performed by Respondent, its contractors or subcontractors, shall comply with those requirements set forth in OSHA's final rule entitled *Hazardous Waste Operations and Emergency Response*, 29 CFR §1910.120, Subpart H.
2. The HSP shall include, at a minimum, the following items:
  - a. Plans showing the location and layout of any temporary facilities to be constructed;
  - b. Description of the known hazards, including radioactive materials, and evaluation of the risks associated with each contaminant in the groundwater plume and related potential health impacts;
  - c. List of key personnel and alternates responsible for safety, response operations, and protection of the public;
  - d. Description of levels of protection (based on specified standards) to be utilized by all personnel;
  - e. Delineation of work, decontamination, and safe zones, and

definitions of the movement of zones;

- f. Description of decontamination procedures for personnel and equipment, and handling and removal of disposable clothing or equipment;
  - g. Incidental emergency procedures which address emergency care for personnel injuries and exposure problems, and containment measures. These procedures shall include evacuation routes, internal and external communications procedures for response to fire, explosion, or other emergencies, the name of the nearest hospital and the route to that hospital. Local agencies with the capability to respond to emergencies shall be identified and their capabilities shall be described. A description of the procedures for informing the community of these measures shall be outlined;
  - h. Description of the personnel medical surveillance program in effect;
  - i. Description of monitoring for personnel safety;
  - j. Description of routine and special personnel training programs;
  - k. Description of an air monitoring program to determine concentrations of airborne contaminants to which workers or others may be exposed. The results of work-zone air monitoring may be used as a trigger for implementing air monitoring; and
  - l. Description of all measures needed to protect workers from the NRC regulated wastes.
- H. A plan to ensure that any adverse impacts caused by the Work to streams, surface water bodies and wetland areas will be mitigated.
- I. A plan to conduct a cultural resources survey to ensure compliance with the National Historic Preservation Act.
- J. Development of an Initial Testing Program (ITP) for the start-up and initial testing of the groundwater remedial system to ensure that the remedial system is operational and functional as designed and constructed.
- K. Access and Other Approvals  

The draft RD Work Plan shall include descriptions of known access and other approvals and institutional controls which Respondent will need in order to comply with the Order, with the exception of those approvals needed from the EPA. This description shall detail how such access and other approvals will be sought, and shall include a schedule for obtaining all necessary access and other

approvals including, but not limited to, approval from any off-Site facility accepting waste materials shipped by or on behalf of Respondent. This description shall be updated as appropriate, if subsequent approvals are required.

L. Institutional Controls.

The draft Remedial Design Work Plan shall include a description of appropriate institutional controls, including establishing a CEA to further restrict the use of contaminated groundwater until the aquifer is restored to the appropriate NJ GWQSs or MCLs, whichever is lower. The Respondent shall secure institutional controls in accordance with the procedures set forth in the Order. Institutional controls including the establishment of a CEA and may also include such controls as deed restrictions and groundwater well use restrictions. The restrictions shall be maintained until EPA notifies the Respondent that EPA has determined, after a reasonable opportunity for review and comment by the State of New Jersey, that the restrictions may be lifted without posing a threat to human health and the environment.

**VII. APPROVAL OF REMEDIAL DESIGN WORK PLAN**

Following EPA approval, pursuant to Section IX (EPA Approval of Plans and Other Submissions) of the Order, the draft RD Work Plan shall become the RD Work Plan and shall be incorporated into and become an enforceable part of the Order. EPA may request additional modification of the report and/or works.

**VIII. REMEDIAL DESIGN**

Respondent shall perform the RD activities in conformance with the RD Work Plan approved by the EPA and within the time frames specified in the RD schedule contained therein.

- A. Within forty-five (45) days of the completion of all field work performed under the FSP, the Respondent shall submit a Field Sampling and Analysis Report (FSAR) to EPA for review and approval pursuant to Section IX (EPA Approval of Plan and Other Submissions) of the Order.
- B. The RD Reports shall be submitted to the EPA and NJDEP in accordance with the schedule set forth in the EPA-approved RD Work Plan. Each RD Report shall include a discussion of the design criteria and objectives, with emphasis on the capacity and ability to meet design objectives successfully. Each report shall also include the plans and specifications that have been developed at that point in time, along with a design analysis. The design analysis shall provide the rationale for the plans and specifications, including results of relevant sampling and testing performed, supporting calculations and documentation of how these plans and specifications will meet the requirements of the ROD and shall provide a discussion of any impacts these findings may have on the RD. The RD Reports

shall include the following items:

1. Technical specifications for photographic documentation of the remedial construction work;
2. A plan for establishing institutional controls which will include the establishment of a CEA as well as deed restrictions and groundwater well use restrictions to further restrict the use of groundwater associated with the Site until the aquifer is restored to the appropriate groundwater standards;
3. A Construction Quality Assurance Project Plan (CQAPP), which shall detail the approach to quality assurance during construction activities at the Site;
4. A report describing those efforts made to secure access and obtain other approvals and the results of those efforts. Legal descriptions of property or easements to be acquired, if necessary, shall be provided;
5. A plan for implementation of construction and construction oversight; and
6. An ITP for the start-up and initial testing of the groundwater remedial system to ensure that the system is operational and functional as designed and constructed.

#### **IX. APPROVAL OF RD REPORTS**

- A. EPA will review and comment on the Preliminary RD Report (35% completion), and the Pre-Final RD Report (95% completion) pursuant to Section IX (EPA Approval of Plan and Other Submissions) of the Order. Respondent shall make those changes required by EPA's comments in the succeeding design report (e.g. changes required by comments on the Preliminary RD Report (35% completion) shall be made in the Pre-Final RD Report (95% completion).
- B. Respondent shall submit the Final RD Report (100% completion) to EPA for review and approval pursuant to Section IX (EPA Approval of Plan and Other Submissions) of the Order. Based on its review of the Final RD Report, EPA may request additional modification of the report and/or works. Once approved by EPA, the Final RD Report (100% completion) shall be incorporated into and an enforceable part of the Order.